

Product Summary

| V _{RRM} (V) | I _o (A) | V _F (MAX) (V) @ +25°C | I _R (Typ) (μA) @ +25°C |
|----------------------|--------------------|-------------------------------------|--------------------------------------|
| 650 | 4 | 1.5 | 1.1 |

Features and Benefits

- Low Conduction and Switching Loss
- High Temperature Application
- Positive Temperature Coefficient on V_F
- Fast Reverse Recovery
- High Surge Current Capability
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](#) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

Description and Applications

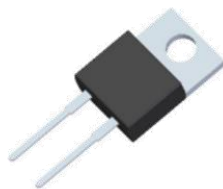
Packaged in the robust industry-standard TO220AC (Type WX) package, the DIODES™ DSC04A065 provides excellent reverse leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode, or blocking diode in:

- Power factor correction
- Industrial motor drivers
- Power inverters
- SMPS
- UPS

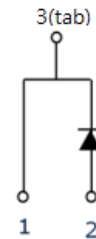
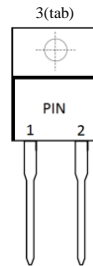
Mechanical Data

- Package: TO220AC
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 **e3**
- Weight: 1.868 grams (Approximate)

TO220AC (Type WX)



Top View

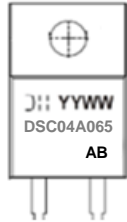


Ordering Information (Note 4)

| Part Number | Package | Packing | |
|-------------|-------------------|-----------|---------|
| | | Qty. | Carrier |
| DSC04A065 | TO220AC (Type WX) | 50 Pieces | Tube |

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



DII = Manufacturer's Marking
 DSC04A065 = Product Type Marking Code
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 22 = 2022)
 WW = Week (01 to 53)
 AB = Fab and Assembly Code

Maximum Ratings (@ $T_C = +25^\circ\text{C}$, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit |
|--|-----------|-------|------|
| Peak Repetitive Reverse Voltage | V_{RRM} | 650 | V |
| DC Blocking Voltage | V_{DC} | | |
| Average Rectified Output Current | I_O | 4 | A |
| Non-Repetitive Peak Forward Surge Current 10ms Half-Sine Wave Form | I_{FSM} | 29 | A |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|--|-----------------|-------------|--------------------|
| Typical Thermal Resistance, Junction to Case (Notes 5, 6, 7) | $R_{\theta JC}$ | 7 | $^\circ\text{C/W}$ |
| Typical Thermal Resistance, Junction to Lead (Notes 5, 6, 7) | $R_{\theta JL}$ | 5 | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range | T_J, T_{STG} | -55 to +175 | $^\circ\text{C}$ |

Notes: 5. Thermal resistance test performed in accordance with JESD-51.
 6. The unit mounted on 35mm x 35mm x 1.7mm copper heatsink.
 7. Device mounted on 1inch² copper pad, 2oz. The heat generated must be less than the thermal conductivity from junction to case: $dP_D / dT_J < 1/R_{\theta JC}$ or junction to ambient: $dP_D / dT_J < 1/R_{\theta JA}$.

Electrical Characteristics (@ $T_C = +25^\circ\text{C}$, unless otherwise specified.)

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|-------------------------|----------|-----|------|-----|---------------|--|
| Reverse Voltage | V_{BR} | 650 | — | — | V | $I_R = 0.10\text{mA}$ |
| Forward Voltage Drop | V_F | — | 1.32 | 1.5 | V | $I_F = 4\text{A}, T_J = +25^\circ\text{C}$ $I_F = 4\text{A}, T_J = +175^\circ\text{C}$ |
| Leakage Current | I_R | — | 1.1 | 170 | μA | $V_R = 650\text{V}, T_J = +25^\circ\text{C}$ $V_R = 650\text{V}, T_J = +175^\circ\text{C}$ |
| Total Capacitive Charge | Q_C | — | 12 | — | nC | $I_F = 4\text{A}, dI/dt = 200\text{A}/\mu\text{s},$ $V_R = 400\text{V}, T_J = +25^\circ\text{C}$ |
| Total Capacitance | C_T | — | 187 | — | pF | $V_R = 0.1\text{V}, T_J = +25^\circ\text{C}, f = 1\text{MHz}$ $V_R = 1\text{V}, T_J = +25^\circ\text{C}, f = 1\text{MHz}$ $V_R = 40\text{V}, T_J = +25^\circ\text{C}, f = 1\text{MHz}$ |

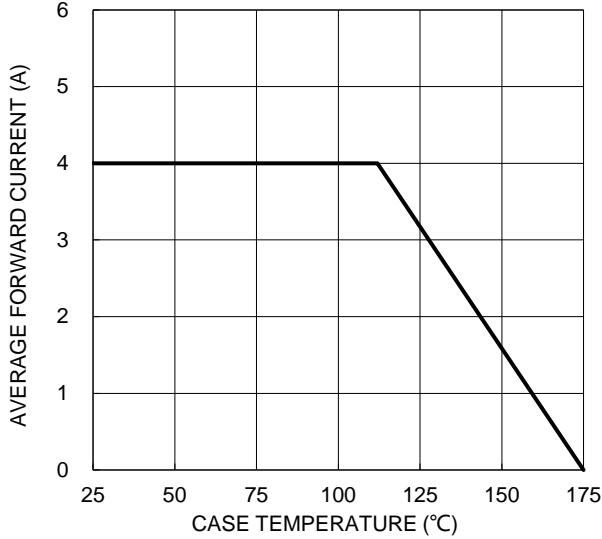


Figure 1. Forward Current Derating Curve

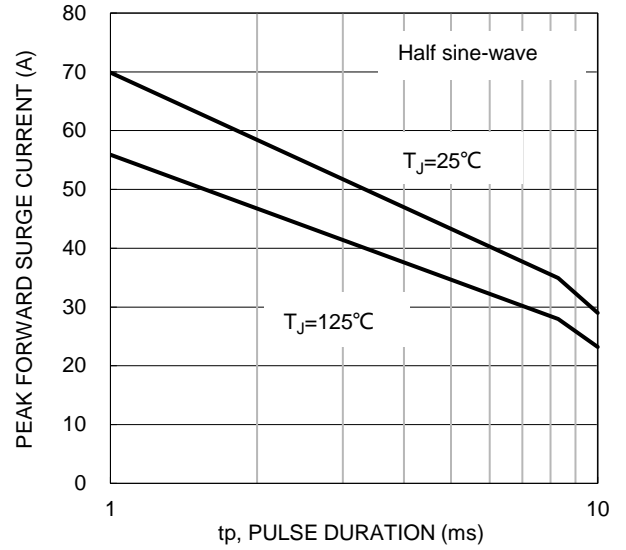


Figure 2. Non-Repetitive Peak Surge Forward Current

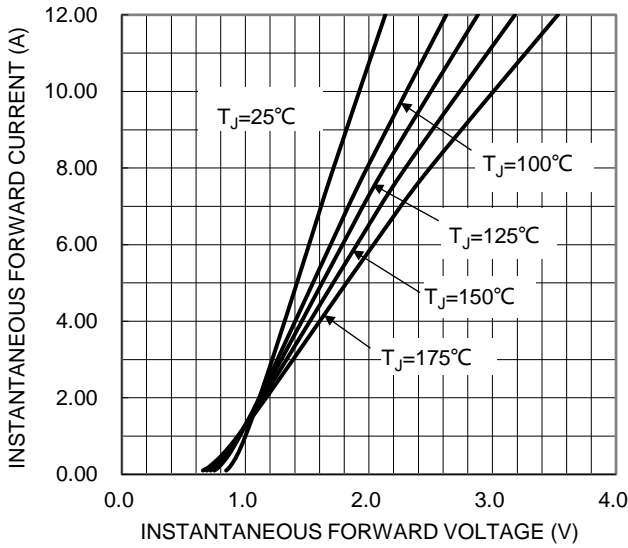


Figure 3. Typical Forward Characteristics

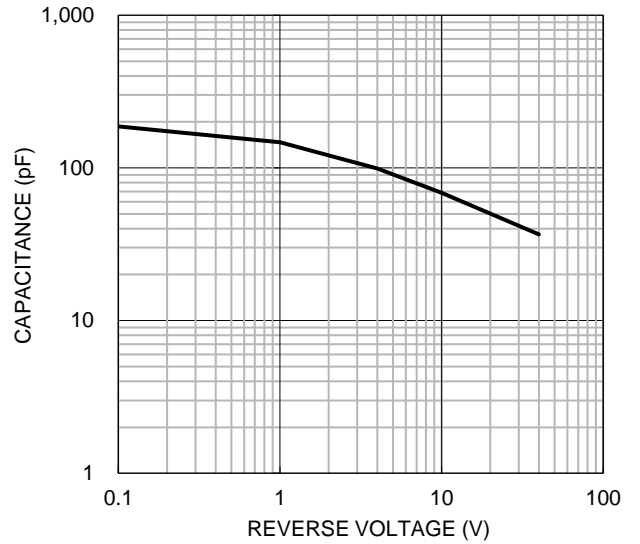


Figure 4. Typical Junction Capacitance

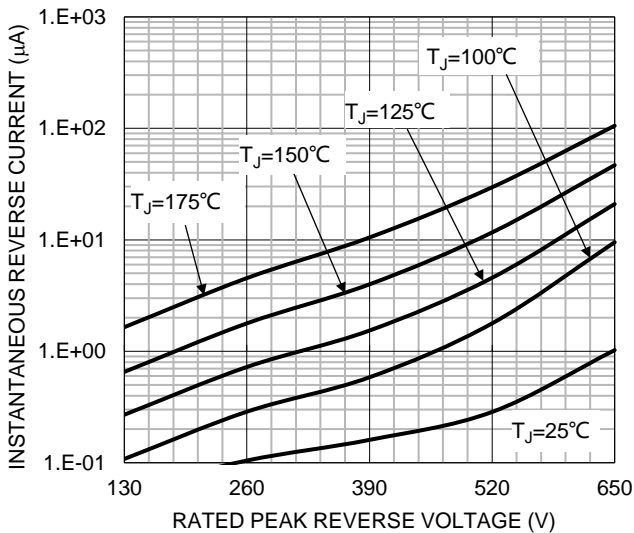


Figure 5. Typical Reverse Characteristics

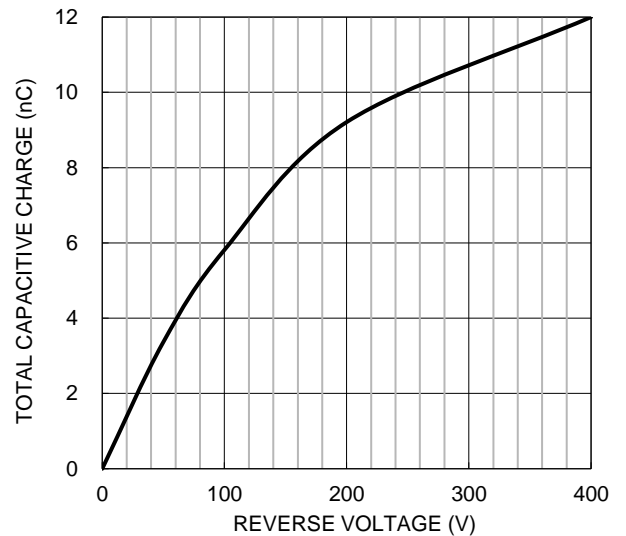
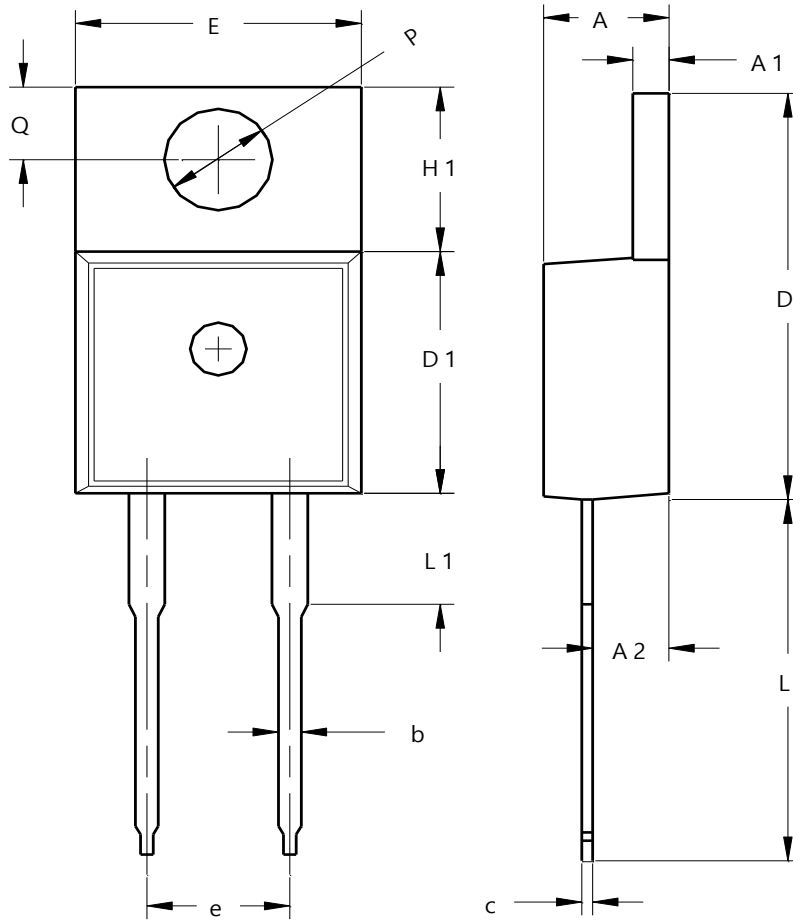


Figure 6. Typical Capacitive Charges

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

TO220AC (Type WX)



| TO220AC (Type WX) | | |
|-----------------------------|-------|-------|
| Dim | Min | Typ |
| A | 3.56 | 4.83 |
| A1 | 1.14 | 1.40 |
| A2 | 2.03 | 2.92 |
| b | 0.51 | 1.14 |
| c | 0.30 | 0.64 |
| D | 14.40 | 15.20 |
| D1 | 8.26 | 9.28 |
| E | 9.65 | 10.67 |
| e | 4.83 | 5.33 |
| H1 | 5.84 | 6.86 |
| L | 12.70 | 14.73 |
| L1 | -- | 4.20 |
| P \varnothing | 3.53 | 4.09 |
| Q | 2.54 | 3.43 |
| All Dimensions in mm | | |

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